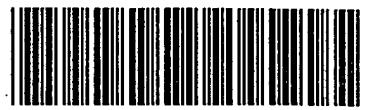


## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.**

Application Serial Number: 10/001,245C  
Source: IFWJ6  
Date Processed by STIC: 7/12/05

***ENTERED***



IFW16

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/001,245C

DATE: 07/12/2005  
TIME: 09:04:27

Input Set : A:\SequenceListing.TXT  
Output Set: N:\CRF4\07122005\J001245C.raw

3 <110> APPLICANT: HOLM, Jens  
4 IPSEN, Henrik  
5 LARSEN, Jorgen N.  
6 SPANGFORT, Michael D.  
8 <120> TITLE OF INVENTION: Novel mutant allergens  
10 <130> FILE REFERENCE: 4305/1H942-US2  
12 <140> CURRENT APPLICATION NUMBER: US 10/001,245C  
13 <141> CURRENT FILING DATE: 2001-11-15  
15 <150> PRIOR APPLICATION NUMBER: US 60/298,170  
16 <151> PRIOR FILING DATE: 2001-06-14  
18 <150> PRIOR APPLICATION NUMBER: US 60/249,361  
19 <151> PRIOR FILING DATE: 2000-11-16  
21 <160> NUMBER OF SEQ ID NOS: 217  
23 <170> SOFTWARE: PatentIn version 3.1  
25 <210> SEQ ID NO: 1  
26 <211> LENGTH: 160  
27 <212> TYPE: PRT  
28 <213> ORGANISM: Betula verrucosa  
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32 <222> LOCATION: (28)..(28)  
34 <220> FEATURE:  
35 <221> NAME/KEY: mutation  
36 <222> LOCATION: (32)..(32)  
38 <220> FEATURE:  
39 <221> NAME/KEY: mutation  
40 <222> LOCATION: (78)..(78)  
42 <220> FEATURE:  
43 <221> NAME/KEY: mutation  
44 <222> LOCATION: (103)..(103)  
46 <220> FEATURE:  
47 <221> NAME/KEY: mutation  
48 <222> LOCATION: (145)..(145)  
50 <220> FEATURE:  
51 <221> NAME/KEY: mutation  
52 <222> LOCATION: (156)..(156)  
54 <220> FEATURE:  
55 <221> NAME/KEY: mutation  
56 <222> LOCATION: (160)..(160)  
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60 Gly Val Phe Asn Tyr Glu Thr Glu Thr Thr Ser Val Ile Pro Ala Ala  
61 1 5 10 15  
64 Arg Leu Phe Lys Ala Phe Ile Leu Asp Gly Asp Thr Leu Phe Pro Gln

⑥

RAW SEQUENCE LISTING DATE: 07/12/2005  
 PATENT APPLICATION: US/10/001,245C TIME: 09:04:27

Input Set : A:\SequenceListing.TXT  
 Output Set: N:\CRF4\07122005\J001245C.raw

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65          20          25          30
68 Val Ala Pro Gln Ala Ile Ser Ser Val Glu Asn Ile Glu Gly Asn Gly
69          35          40          45
72 Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
73          50          55          60
76 Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Lys Phe Lys
77 65          70          75          80
80 Tyr Asn Tyr Ser Val Ile Glu Gly Pro Ile Gly Asp Thr Leu Glu
81          85          90          95
84 Lys Ile Ser Asn Glu Ile Val Ile Val Ala Thr Pro Asp Gly Gly Ser
85          100         105         110
88 Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val
89          115         120         125
92 Lys Ala Glu Gln Val Lys Ala Ser Lys Glu Met Gly Glu Thr Leu Leu
93          130         135         140
96 Glu Ala Val Glu Ser Tyr Leu Leu Ala His Ser His Ala Tyr Asn Asn
97 145         150         155         160
100 <210> SEQ ID NO: 2
101 <211> LENGTH: 159
102 <212> TYPE: PRT
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105 <220> FEATURE:
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107 <222> LOCATION: (5)..(5)
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111 <222> LOCATION: (42)..(42)
113 <220> FEATURE:
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115 <222> LOCATION: (45)..(45)
117 <220> FEATURE:
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121 <220> FEATURE:
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131 <222> LOCATION: (134)..(134)
133 <220> FEATURE:
134 <221> NAME/KEY: mutation
135 <222> LOCATION: (156)..(156)
137 <400> SEQUENCE: 2
139 Gly Val Phe Asn Val Glu Thr Glu Thr Thr Ser Val Ile Pro Ala Ala
140 1          5          10          15
143 Arg Leu Phe Lys Ala Phe Ile Leu Asp Gly Asp Asn Leu Phe Pro Lys

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RAW SEQUENCE LISTING DATE: 07/12/2005  
 PATENT APPLICATION: US/10/001,245C TIME: 09:04:27

Input Set : A:\SequenceListing.TXT  
 Output Set: N:\CRF4\07122005\J001245C.raw

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144          20          25          30
147 Val Ala Pro Gln Ala Ile Ser Ser Val Ser Asn Ile Ser Gly Asn Gly
148          35          40          45
151 Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
152          50          55          60
155 Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Lys Phe Lys
156 65          70          75          80
159 Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
160          85          90          95
163 Lys Ile Ser Asn Glu Ile Val Ile Val Ala Thr Pro Asp Gly Gly Ser
164          100         105         110
167 Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Ile Gly Asp His Glu Val
168          115         120         125
171 Lys Ala Glu Gln Val Glu Ala Ser Lys Glu Met Gly Glu Thr Leu Leu
172          130         135         140
175 Arg Ala Val Glu Ser Tyr Leu Leu Ala His Ser His Ala Tyr Asn
176 145         150         155
179 <210> SEQ ID NO: 3
180 <211> LENGTH: 159
181 <212> TYPE: PRT
182 <213> ORGANISM: Betula verrucosa
184 <220> FEATURE:
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186 <222> LOCATION: (28)..(28)
188 <220> FEATURE:
189 <221> NAME/KEY: mutation
190 <222> LOCATION: (32)..(32)
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194 <222> LOCATION: (45)..(45)
196 <220> FEATURE:
197 <221> NAME/KEY: mutation
198 <222> LOCATION: (108)..(108)
200 <400> SEQUENCE: 3
202 Gly Val Phe Asn Tyr Glu Thr Glu Thr Thr Ser Val Ile Pro Ala Ala
203 1          5          10          15
206 Arg Leu Phe Lys Ala Phe Ile Leu Asp Gly Asp Thr Leu Phe Pro Gln
207          20          25          30
210 Val Ala Pro Gln Ala Ile Ser Ser Val Glu Asn Ile Ser Gly Asn Gly
211          35          40          45
214 Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
215          50          55          60
218 Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe Lys
219 65          70          75          80
222 Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
223          85          90          95
226 Lys Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Gly Asp Gly Gly Ser
227          100         105         110
230 Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val

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RAW SEQUENCE LISTING DATE: 07/12/2005  
 PATENT APPLICATION: US/10/001,245C TIME: 09:04:27

Input Set : A:\SequenceListing.TXT  
 Output Set: N:\CRF4\07122005\J001245C.raw

231 115 120 125  
 234 Lys Ala Glu Gln Val Lys Ala Ser Lys Glu Met Gly Glu Thr Leu Leu  
 235 130 135 140  
 238 Arg Ala Val Glu Ser Tyr Leu Leu Ala His Ser Asp Ala Tyr Asn  
 239 145 150 155  
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 243 <211> LENGTH: 159  
 244 <212> TYPE: PRT  
 245 <213> ORGANISM: Betula verrucosa  
 247 <220> FEATURE:  
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 249 <222> LOCATION: (5)..(5)  
 251 <220> FEATURE:  
 252 <221> NAME/KEY: mutation  
 253 <222> LOCATION: (45)..(45)  
 255 <220> FEATURE:  
 256 <221> NAME/KEY: mutation  
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 263 <220> FEATURE:  
 264 <221> NAME/KEY: mutation  
 265 <222> LOCATION: (134)..(134)  
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 269 Gly Val Phe Asn Val Glu Thr Glu Thr Ser Val Ile Pro Ala Ala  
 270 1 5 10 15  
 273 Arg Leu Phe Lys Ala Phe Ile Leu Asp Gly Asp Asn Leu Phe Pro Lys  
 274 20 25 30  
 277 Val Ala Pro Gln Ala Ile Ser Ser Val Glu Asn Ile Ser Gly Asn Gly  
 278 35 40 45  
 281 Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe  
 282 50 55 60  
 285 Asn Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe Lys  
 286 65 70 75 80  
 289 Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu  
 290 85 90 95  
 293 Ser Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Pro Asp Gly Gly Ser  
 294 100 105 110  
 297 Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val  
 298 115 120 125  
 301 Lys Ala Glu Gln Val Glu Ala Ser Lys Glu Met Gly Glu Thr Leu Leu  
 302 130 135 140  
 305 Arg Ala Val Glu Ser Tyr Leu Leu Ala His Ser Asp Ala Tyr Asn  
 306 145 150 155  
 309 <210> SEQ ID NO: 5  
 310 <211> LENGTH: 159  
 311 <212> TYPE: PRT  
 312 <213> ORGANISM: Betula verrucosa

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/001,245C

DATE: 07/12/2005

TIME: 09:04:27

Input Set : A:\SequenceListing.TXT  
 Output Set: N:\CRF4\07122005\J001245C.raw

314 <220> FEATURE:  
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 318 <220> FEATURE:  
 319 <221> NAME/KEY: mutation  
 320 <222> LOCATION: (28)..(28)  
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 324 <222> LOCATION: (32)..(32)  
 326 <220> FEATURE:  
 327 <221> NAME/KEY: mutation  
 328 <222> LOCATION: (103)..(103)  
 330 <220> FEATURE:  
 331 <221> NAME/KEY: mutation  
 332 <222> LOCATION: (108)..(108)  
 334 <220> FEATURE:  
 335 <221> NAME/KEY: mutation  
 336 <222> LOCATION: (152)..(152)  
 338 <220> FEATURE:  
 339 <221> NAME/KEY: mutation  
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 342 <220> FEATURE:  
 343 <221> NAME/KEY: mutation  
 344 <222> LOCATION: (155)..(155)  
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 348 Gly Val Phe Asn Tyr Glu Thr Glu Thr Ser Val Ile Pro Ala Pro  
 349 1 5 10 15  
 352 Arg Leu Phe Lys Ala Phe Ile Leu Asp Gly Asp Thr Leu Phe Pro Gln  
 353 20 25 30  
 356 Val Ala Pro Gln Ala Ile Ser Ser Val Glu Asn Ile Glu Gly Asn Gly  
 357 35 40 45  
 360 Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe  
 361 50 55 60  
 364 Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe Lys  
 365 65 70 75 80  
 368 Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu  
 369 85 90 95  
 372 Lys Ile Ser Asn Glu Ile Val Ile Val Ala Thr Gly Asp Gly Gly Ser  
 373 100 105 110  
 376 Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val  
 377 115 120 125  
 380 Lys Ala Glu Gln Val Lys Ala Ser Lys Glu Met Gly Glu Thr Leu Leu  
 381 130 135 140  
 384 Arg Ala Val Glu Ser Tyr Leu Lys Gly His Pro Asp Ala Tyr Asn  
 385 145 150 155  
 388 <210> SEQ ID NO: 6  
 389 <211> LENGTH: 160  
 390 <212> TYPE: PRT  
 391 <213> ORGANISM: Betula verrucosa

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 07/12/2005  
PATENT APPLICATION: US/10/001,245C TIME: 09:04:28

Input Set : A:\SequenceListing.TXT  
Output Set: N:\CRF4\07122005\J001245C.raw

**Please Note:**

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:117; Xaa Pos. 53,54,126,127,199,200  
Seq#:118; Xaa Pos. 53,54,126,127,200,201  
Seq#:119; Xaa Pos. 53,54,103,126,127,198,199  
Seq#:120; Xaa Pos. 52,53,83,122,123,191,192  
Seq#:121; Xaa Pos. 30,52,53,122,123,195,196  
Seq#:122; Xaa Pos. 49,50,119,120,167,189,190  
Seq#:123; Xaa Pos. 45,46,48,75,105,108,109,145,168  
Seq#:124; Xaa Pos. 46,47,101,118,124,125,164,165  
Seq#:125; Xaa Pos. 9,42,43,98,99,100,101,154,155  
Seq#:126; Xaa Pos. 39,42,43,98,99,100,101,153,154  
Seq#:214; Xaa Pos. 1,2

**VERIFICATION SUMMARY**  
PATENT APPLICATION: US/10/001,245C

DATE: 07/12/2005  
TIME: 09:04:28

Input Set : A:\SequenceListing.TXT  
Output Set: N:\CRF4\07122005\J001245C.raw

L:7622 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:117 after pos.:48  
M:341 Repeated in SeqNo=117  
L:7687 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:118 after pos.:48  
M:341 Repeated in SeqNo=118  
L:7752 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:119 after pos.:48  
M:341 Repeated in SeqNo=119  
L:7817 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:120 after pos.:48  
M:341 Repeated in SeqNo=120  
L:7874 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:121 after pos.:16  
M:341 Repeated in SeqNo=121  
L:7947 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:122 after pos.:48  
M:341 Repeated in SeqNo=122  
L:8004 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:123 after pos.:32  
M:341 Repeated in SeqNo=123  
L:8061 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:124 after pos.:32  
M:341 Repeated in SeqNo=124  
L:8110 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:125 after pos.:0  
M:341 Repeated in SeqNo=125  
L:8171 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:126 after pos.:32  
M:341 Repeated in SeqNo=126  
L:12123 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:214 after pos.:0